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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/787,070   | 02/25/2004  | Andrew B. Kahng      | 0321.67421          | 2850             |
| 24978  | 7590        | 03/03/2006           | EXAMINER            |                  |
| GREER, BURNS & CRAIN<br>300 S WACKER DR<br>25TH FLOOR<br>CHICAGO, IL 60606 |             |                      | LIN, SUN J          |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2825                |                  |

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/787,070

Applicant(s)

KAHNG ET AL.

Examiner

Sun J. Lin

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-38 is/are allowed.
- 6) ☒ Claim(s) 1 and 6-8 is/are rejected.
- 7) ☒ Claim(s) 2-5 and 9-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2004 and 06 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. This office action is in response to amendments and remarks filed on 01/06/2006 regarding application 10/787,070 filed on 02/25/2004. Claims 1 – 38 remain pending in the application.

#### *Claim Objections*

2. Claim listed below is objected to because of the following informalities:  
Claim 9, line 2, change “a standard deviation” to **—standard deviations—**.

Appropriate correction is required.

#### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 1 and 6 – 8 are rejected under 35 U.S.C. 102(e) as being unpatentable over U.S. Patent Application Publication No. 2005/0216877 A1 to Pack et al.

5. As to Claim 1, Pack et al. show and teach the following subject matter:

- Mask design layout resolution enhancement technology (RET) – [Paragraph 0017, 0018; 0114];
- Determining a first level of correction (first loop in looping 110 ⇒ 112 ⇒ 114 ⇒ 108 ⇒ 110) for a mask design layout for a predetermined parametric yield within acceptable overall cost (e.g., acceptable minimum total correction cost) – [Fig. 1; Paragraph 0061; 0064];

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- Correcting the mask design layout at the first level of correction takes into consideration of overall cost, risk and benefit tradeoffs, which is a correction algorithm, if the first level of correction is determined to be required – [Fig. 1; Paragraph 0061].

For reference purposes, the explanations given above in response to Claim 1 are called [Response A] hereinafter.

6. As to Claims 6 – 8, in addition to reasons (correction algorithms and looping 110 ⇒ 112 ⇒ 114 ⇒ 108 ⇒ 110) included in [Response A] given above, Pack et al. show and disclose the following subject matter:

- A second level of correction is required or not is determined in 112 – [Fig. 1]; Notice that the second level of correction is executed based on the same correction algorithm as explained in [Response A].

#### ***Allowable Subject Matter***

7. Claims 16 – 38 are allowed. Claims 2 – 5 and 9 – 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 16 – 38 are allowed due to allowable subject matter recited in the Office Action mailed 11/02/2005.

Claims 2 – 5 and 9 – 15 are allowed is because the prior art does not teach or fairly suggest the following subject matter:

- A method for performing a mask design layout resolution enhancement, the method comprising determining a first level of correction for a mask design layout, which includes obtaining a probability density function of circuit performance of the mask design layout in combination with other limitations as recited in **Claim 2**;
- A method for performing a mask design layout resolution enhancement, the method comprising correcting a mask design layout based on a correction algorithm, which is based on an assumption that standard deviations of gate

delays of the mask design layout are additive in combination with other limitations as recited in **Claim 9**;

- A method for performing a mask design layout resolution enhancement, the method comprising determining a first level of correction for a mask design layout for a predetermined parametric yield, which is obtained from a yield library in combination with other limitations as recited in **Claim 15**.

### ***Response to Amendments and Remarks***

8. Applicants' amendments and remarks filed on 01/06/2006 have been reviewed. Due to newly found reference, responses to Claims 1 and 6 – 9 included in the Office Action mailed 11/02/2005 mailed are reversed. Detailed responses are given as above.

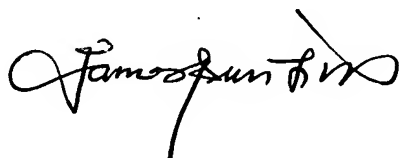
### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Sun James Lin* whose telephone number is (571) 272 - 1899. The examiner can normally be reached on Monday-Friday 9:30AM - 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, *Jack Chiang* can be reached on (571) 272 - 7483. The fax phone number for the organization where this application or proceeding is assigned is 571- 273 - 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sun James Lin  
Patent Examiner  
Art Unit 2825  
February 27, 2006





REVIEWED  
OK  
JEL  
2-27-06

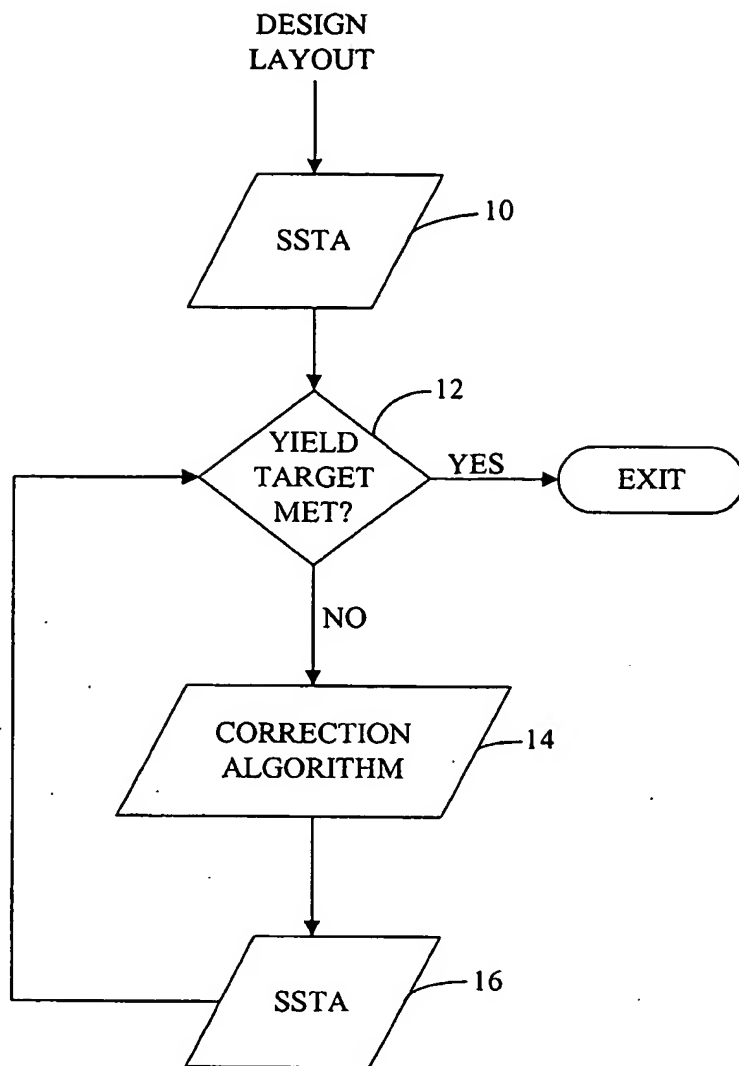


FIG. 1